

The Theory of Plate Tectonics

- Is a theory of why and how the continents move.
- The earth consist of two types of crust.
 - Oceanic Crust
 - Material on the ocean floor
 - Continental Crust
 - Crust that makes up land masses

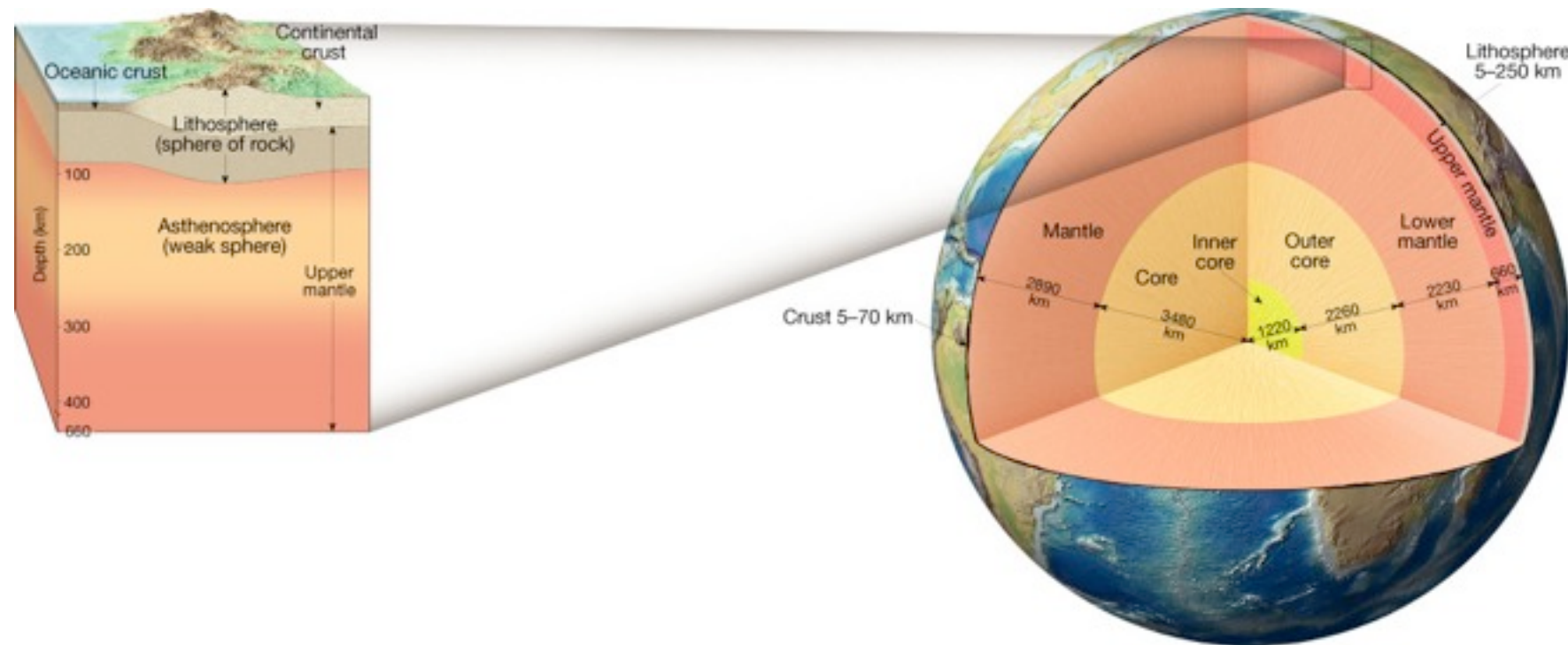
Plates

- Continental Crust
 - Is more buoyant and not as dense as oceanic crust. It is comprised mainly of granitic rock.
- Oceanic Crust
 - Is denser than continental crust because it is crushed by the massive weight of water that is on it. It is mainly comprised of basaltic and sedimentary rock.

—

The Theory of Plate Tectonics

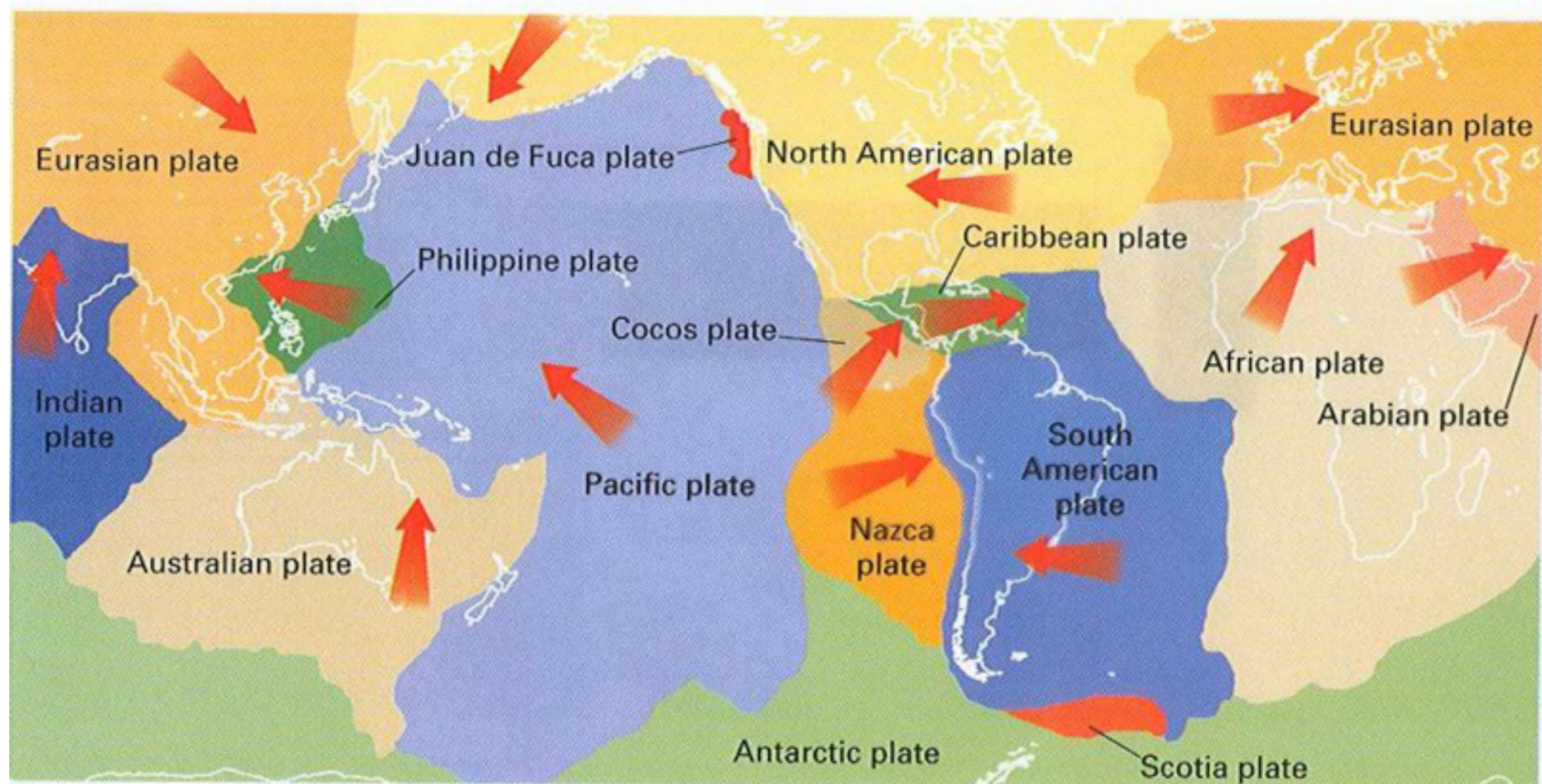
- The oceanic and continental crust make up the lithosphere.
 - Thin outer shell of the earth
- Below the lithosphere lies the asthenosphere, a layer of molten rock, that is melted and flows (like putty) under pressure.



The Theory of Plate Tectonics

- According to the theory, the lithosphere is broken into plates that ride (or float) on the asthenosphere.
 - Like blocks of wood floating on water.
- Most plates are composed of both continental and oceanic crust.

- Most plates are composed of both continental and oceanic crust.



Lithospheric Plate Boundaries

- Some plates move toward each other others are moving apart, and some are simply sliding past one another.
- This constant movement is what has created our earth's major surface.
 - Mountain Ranges
 - Deep-ocean Trenches

Karaoke Moment

Practice...

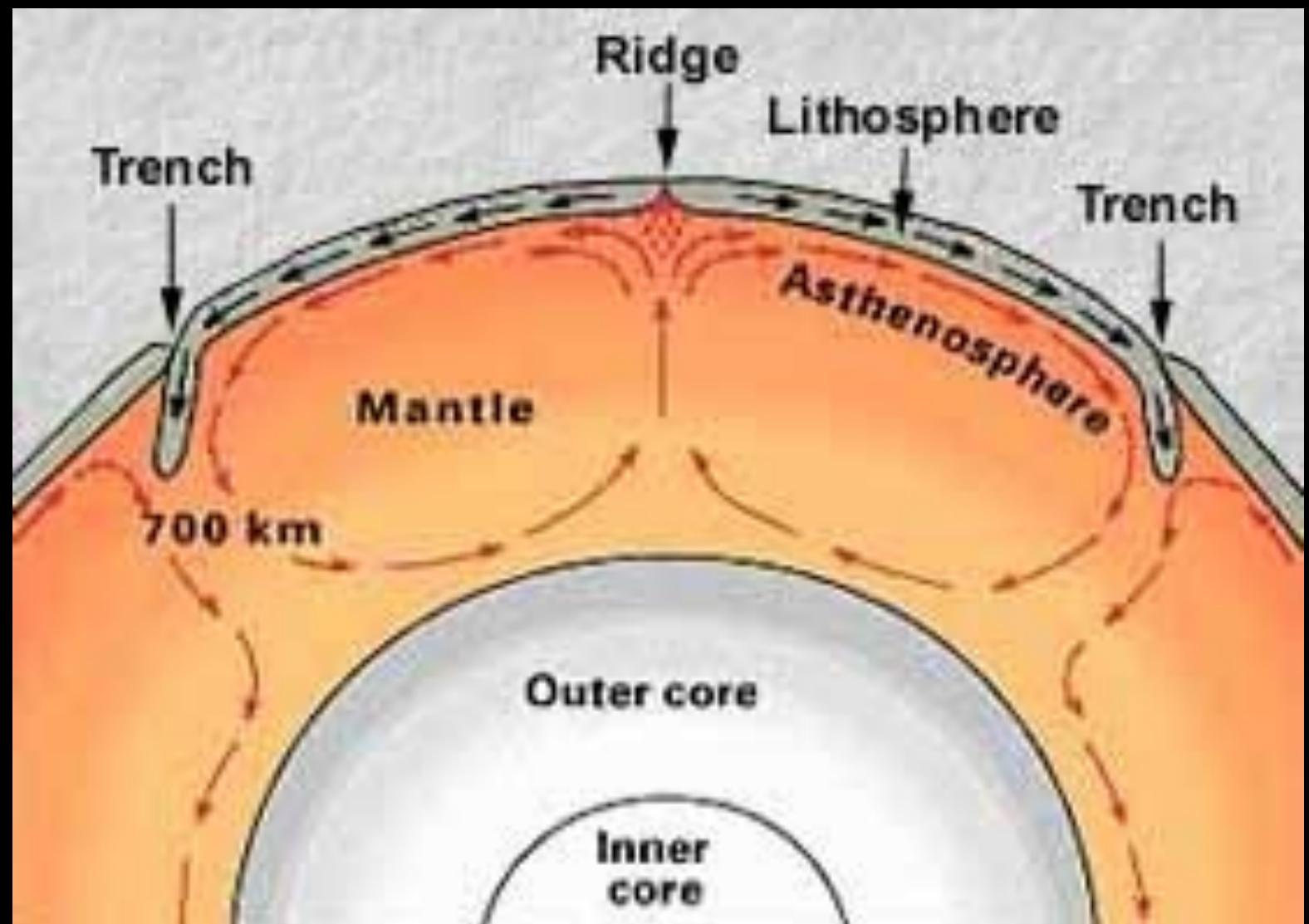
The wheels on the bus go
round and round
round and round
round and round,

The wheels on the bus go
round and round
all through the town.

Convection Cells

*The mantle of the earth
Goes round and round,
Round and round
Round and round,*

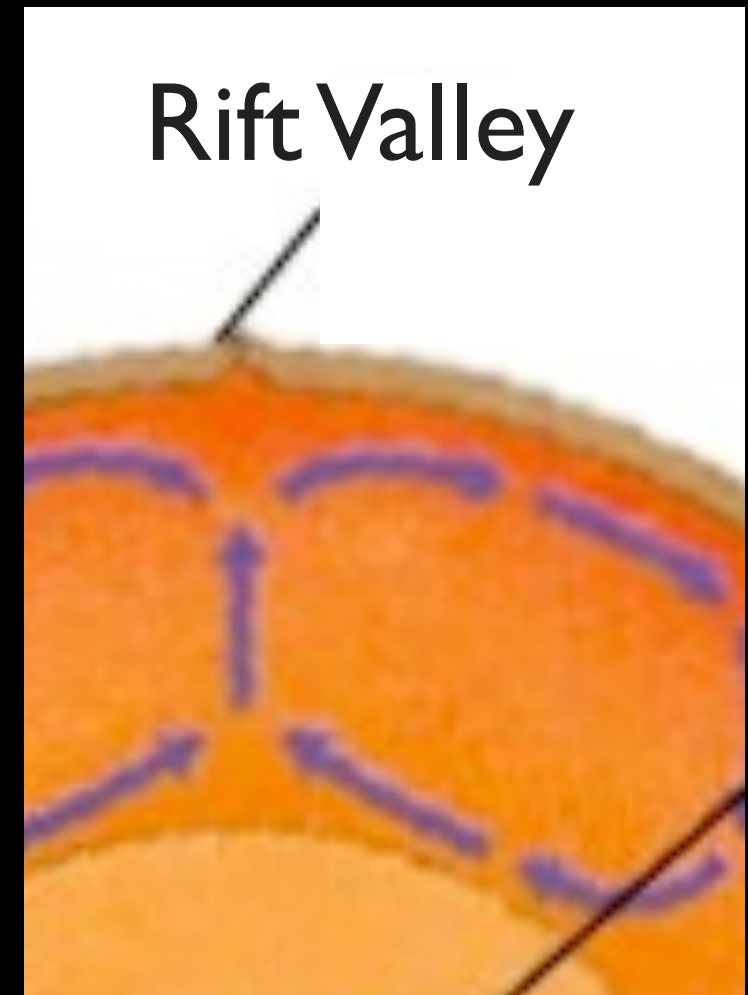
*The mantle of the earth
Goes round and round
All underground*



Spreading Centers

The convection cells form
Spreading centers
Spreading centers
Spreading centers,

The convection cells form
Spreading centers
Creating rift valleys



Subduction Zones

When plates come together
One slides down,
One slides down,
One slides down.

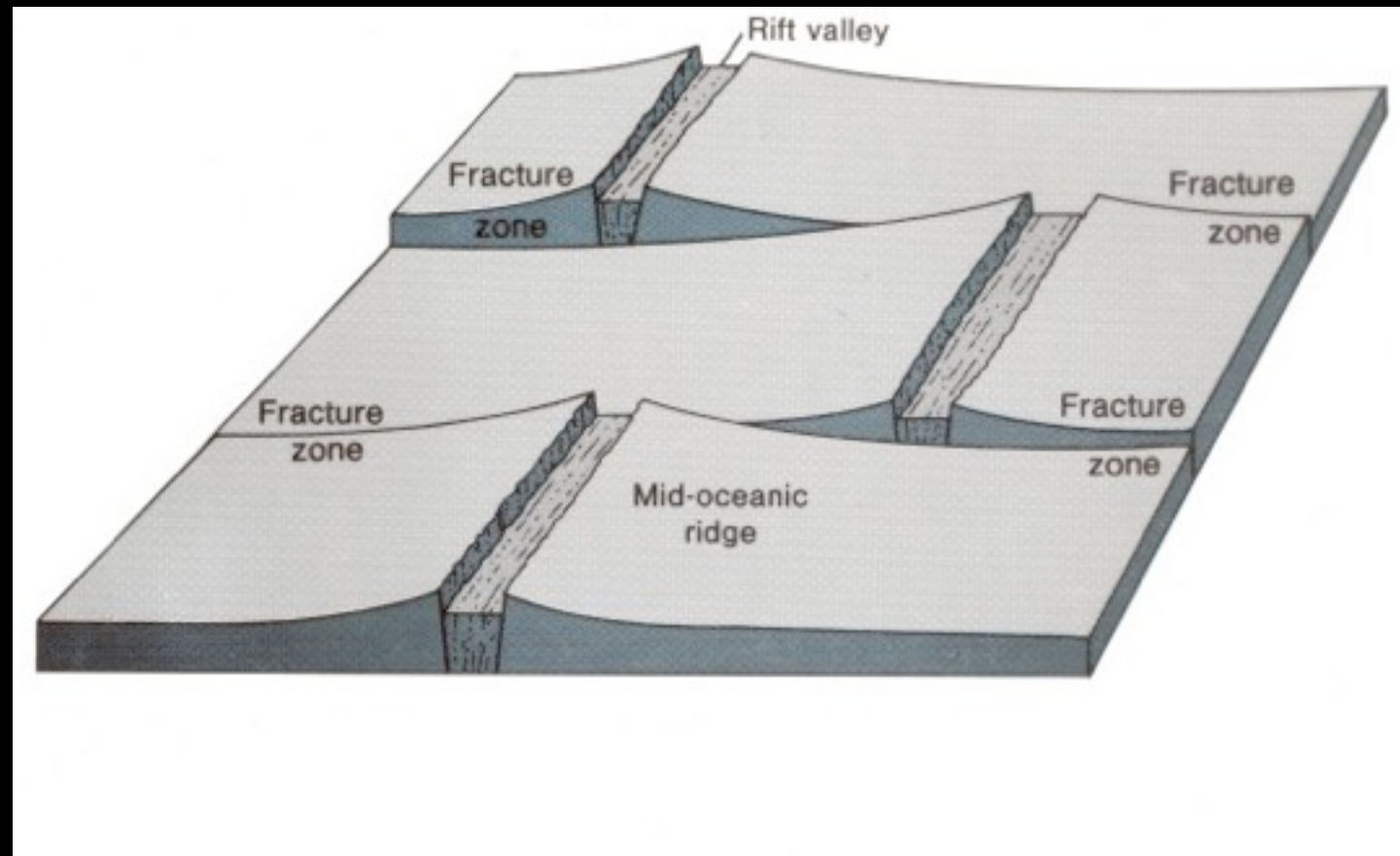
When plates come together
One slides down,
We call it a subduction zone.



Transform Fault

Plates slide past each other at transform faults
Transform faults
Transform faults,

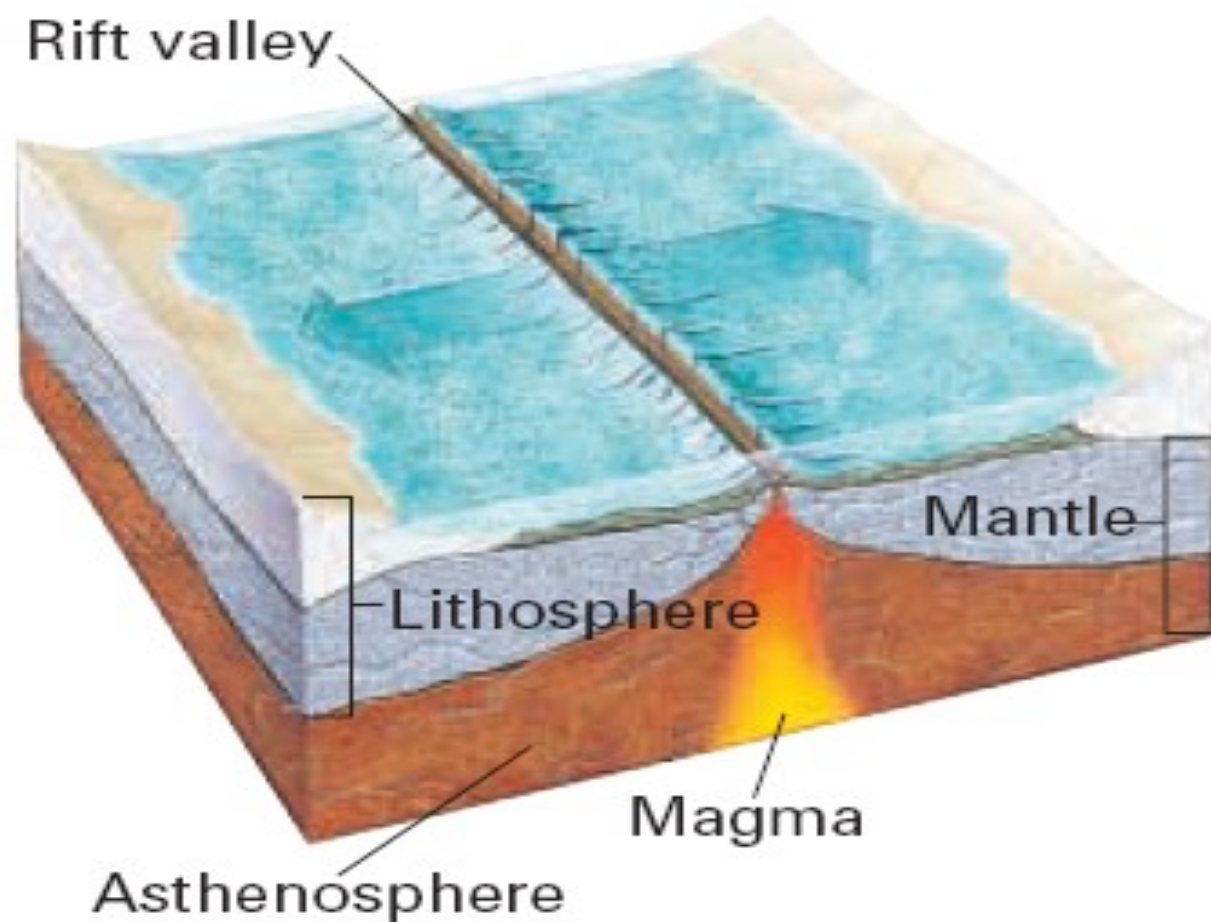
Plates slide past each other at transform faults
and we live next to one!



S a n A n d r e a s F a u l t

Divergent Boundaries

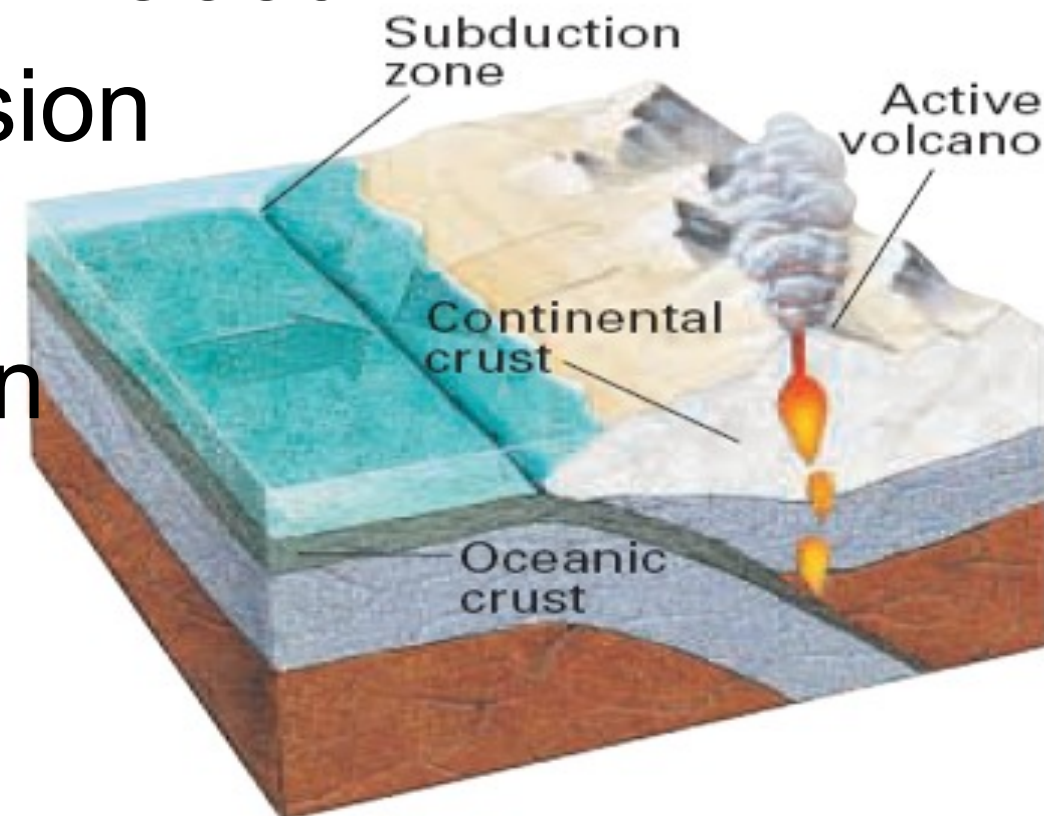
- Plates are moving apart from each other
- We also term these sites spreading centers.
- Form what is known as a rift valley.



It is at divergent plate boundaries where new crust is created.

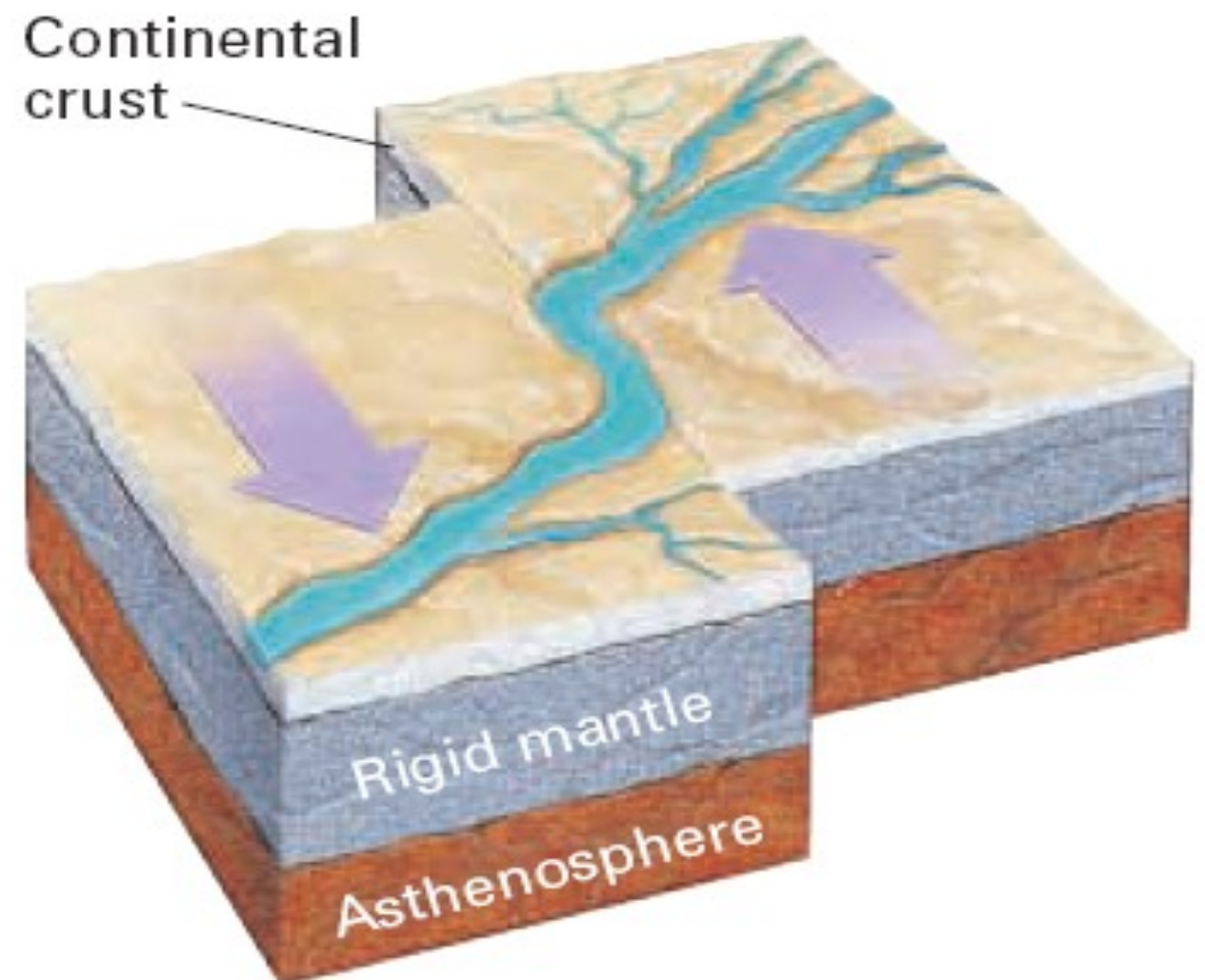
Convergent Boundaries

- Plates are pushing into neighboring plates.
- Usually a subduction zone occurs. That is when oceanic crust crashes into and slides under continental crust.
- 3 convergent boundaries can occur:
 - continental/oceanic crust collision
 - oceanic/oceanic collision
 - continental/continental collision



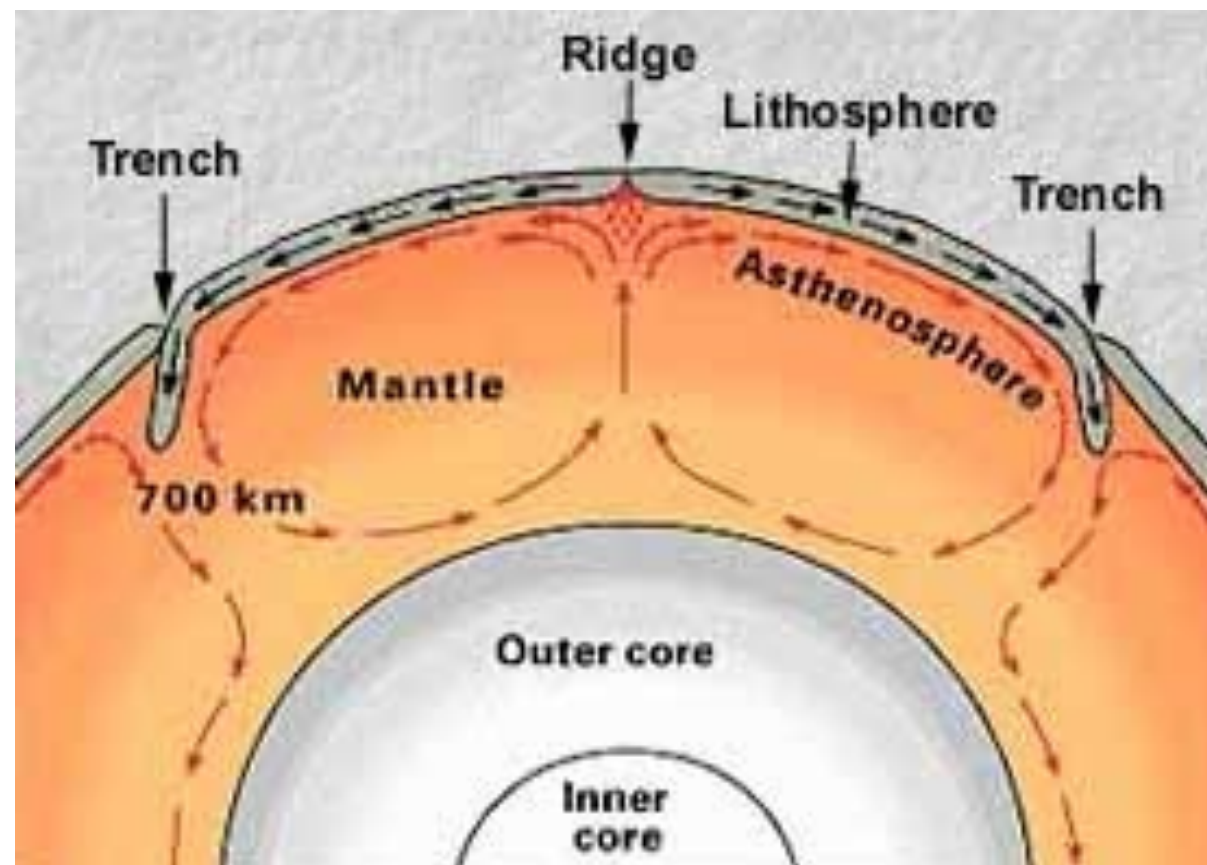
Transform Boundaries

- Formed when two plates grind past each other.
- Example:
 - San Andreas Fault



Causes of Plate Motion

- Many scientist believe that the movement of plates is do to convection cells, movement caused by hot and cooler spots in the mantle. So, the mantle is churning.



Microplate Terrains Theory

–Each terrain has 3 characteristics

- Rocks and fossils unique to it's terrain
- Major fault at every boundary
- Different magnetic properties

